Planning in the Air Force-
Learning from the past--
New bases for MX Deployment

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Planning in the Air Force- Unique aspects of planning new support bases for MX Deployment

- First new bases from “scratch” in decades
- Alternative siting areas for 2 support bases
- Unique contractor selection process
  - Conceptual Planning
    - Largest field of candidates ever
  - Comprehensive Planning
- First application of true planning guidelines
  - BCP program evolving
- First use of “chains of analyses”
  - site, functional, spatial, infrastructure
- “Thinking Comprehensively”

Planning in the Air Force- Learning from the past-- Before BCP

- The 1960's
  - AFR 86-4-- just for mapping or "Tabs"
  - AFM 86-9--SOW for manual mapping
  - AFM 86-6--"Planning" manual
- The 1970's
  - First Use of CADD in AF-- late '70's
    - Okla City AFS- part of AFCC
    - Tried to overlay comm. lines over "C" tabs
    - Using leased hardware/software from M& S Computing, Huntsville, AL
      - Later company would become Intergraph
    - AFCC briefed AFESC; then PHC visited site
  - 1979--PHC comes to Tyndall AFB

Planning in the Air Force- BCP Fundamentals

- The Early 1980's- Fundamentals
  - BCP Restructured entirely
    - Three phase planning process
      - Identify, Evaluate, Implement
    - Three Environments Plan Component Structure
      - Natural, Built and Socio-Cultural
    - Process applied to all three component blocks
    - Realigned Tabs to match component structure
    - New rules requiring bases to site facilities IAW approved BCP, and to program capital improvements accordingly
  - AFR 86-4 incorporating all above 26 Dec 1984

Planning in the Air Force- BCP Guidance Package

- **The 1980's- Comprehensive Planning Guidance Package**
  - **AFR 86-4**
  - **Master SOW- Component Plans and Tabs**
    - **Derived from HQ USAF drafts plus USAFA & AAC SOWs .**
    - **Aerial Photogrammetry Section approved by American Society of Photogrammetrists**
  - **BCP Bulletin Series by Component Plan**
    - **By contract from HQ USAF**
  - **Digital Mapping Standard in lock step with Master SOW**

Planning the two support bases for the MX deployment

- **Early 1980's-- The MX Example**
  - **"Shell Game" missile launcher sites across large areas of Utah and Nevada would have been one of largest construction projects ever in U.S.**
  - **Involved HQ SAC, HQ USAF, AFESC, TRW, Corps of Eng. Literally hundreds of people involved**
  - **Comp. Planning for 2 new support bases-one in Utah and one in Nevada**
    - **Full operational bases-20,000 pop. each**
  - **1st use of revised AFR 86-4; even before pub.**
  - **One of first SOWs based on "new" AFR 86-4 written by HQ SAC staff and PHC**

Planning the two support bases for the MX deployment --Goals for planning

- Established 5 broad goals for MX Conceptual and Comprehensive Planning
- Planning and design decisions which lead to:
  - Conservation of energy; maximum reliance on renewable resources
  - Protection of environmental quality
  - Provision for a high quality of life
  - Optimal land use interrelationships
    - Within the bases and with nearby communities
  - Optimal maintainability
    - Choice of materials and systems to minimize maintenance

Planning the two support bases for the MX deployment -- Planning & Design Principles

- Each building relates to others, visually and functionally
- Buildings enclose spaces & help to create exterior spaces
- Activities which are housed in the building relate to other activities
- Multiple use of systems
  - e.g. pond-visual and recreational feature-also serves as supply for water-cooled central A/C

Planning the two support bases for the MX deployment -- Planning & Design Principles

- Multiple use facilities
  - e.g. 11 inter-related functions in one structure or one compact building complex vs. 11 separate single function structures
- New Town thinking for New Bases
  - Reduce length of streets and utilities
  - Use underground utilities, utilidors
  - Reduce travel between home and work; alternatives to use of private car; pedestrian systems
  - Group related functions in activity centers

Planning the two support bases for the MX deployment -- Planning & Design Principles

- Energy Planning
  - Passive Solar emphasis
    - Site planning orientation to sun and breezes
    - Earth sheltering of buildings
    - Juxtaposition of buildings to shade each other
    - Passive solar design, interior and exterior
  - Indigenous landscape, reducing watering requirements
  - Design to the climate; no definitives
  - Recycling waste heat and solid waste
  - Geothermal, wind as alternative energy sources

Planning the two support bases for the MX deployment -- Planning & Design Principles

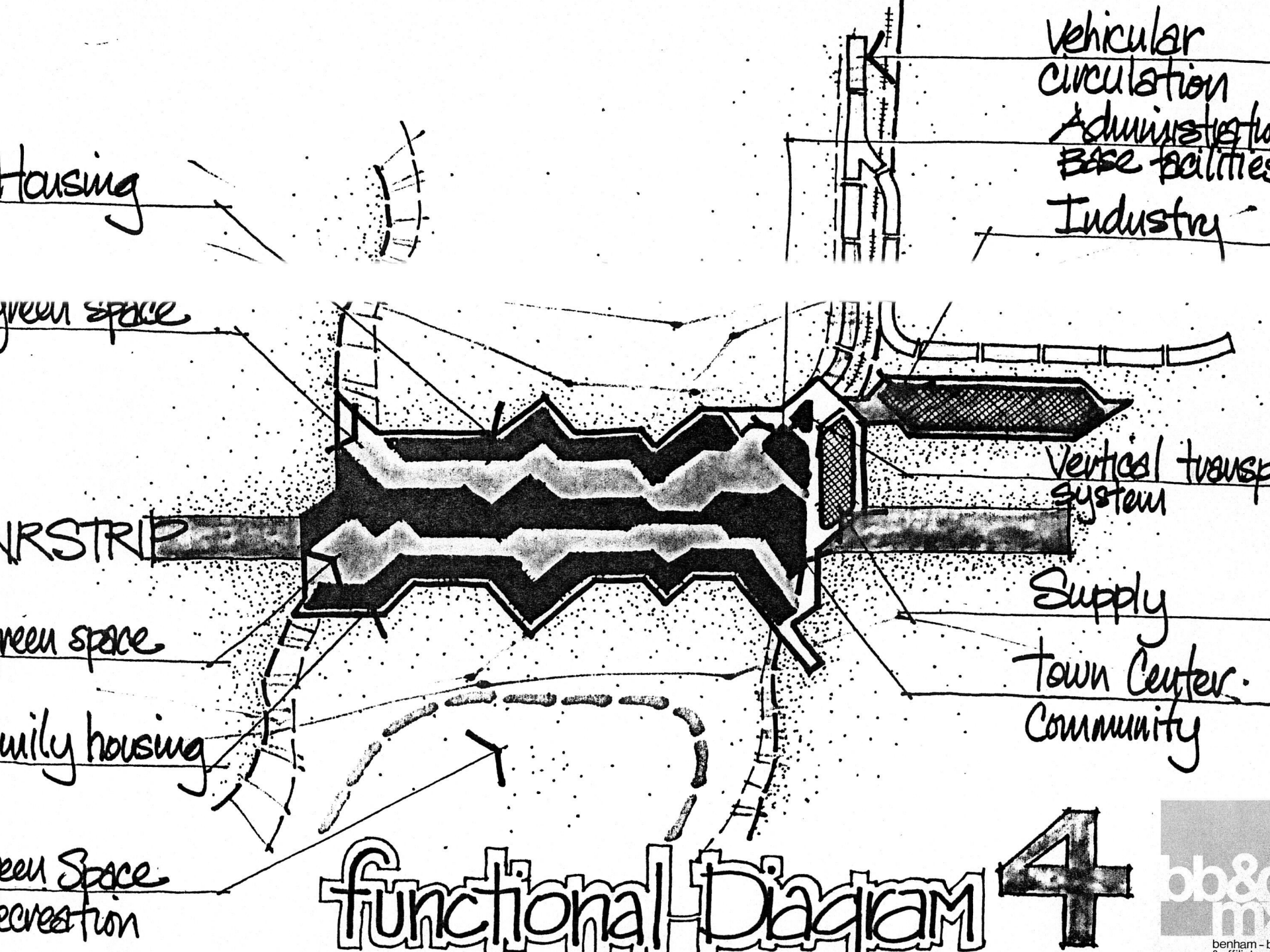
- Composite natural resources planning
  - Ecosystems management vs. separate resource mgmt plans
- Transportation planning
  - Multimodal as appropriate
  - View as system of dynamics to move people and goods
  - Avoid preconceived “let’s put the road there”
    - Do you even need the road?
- Construction Technology
  - Modular construction to save time of construction vs “stick built”
  - Integrated systems-prefabricated

Planning the two support bases for the MX deployment

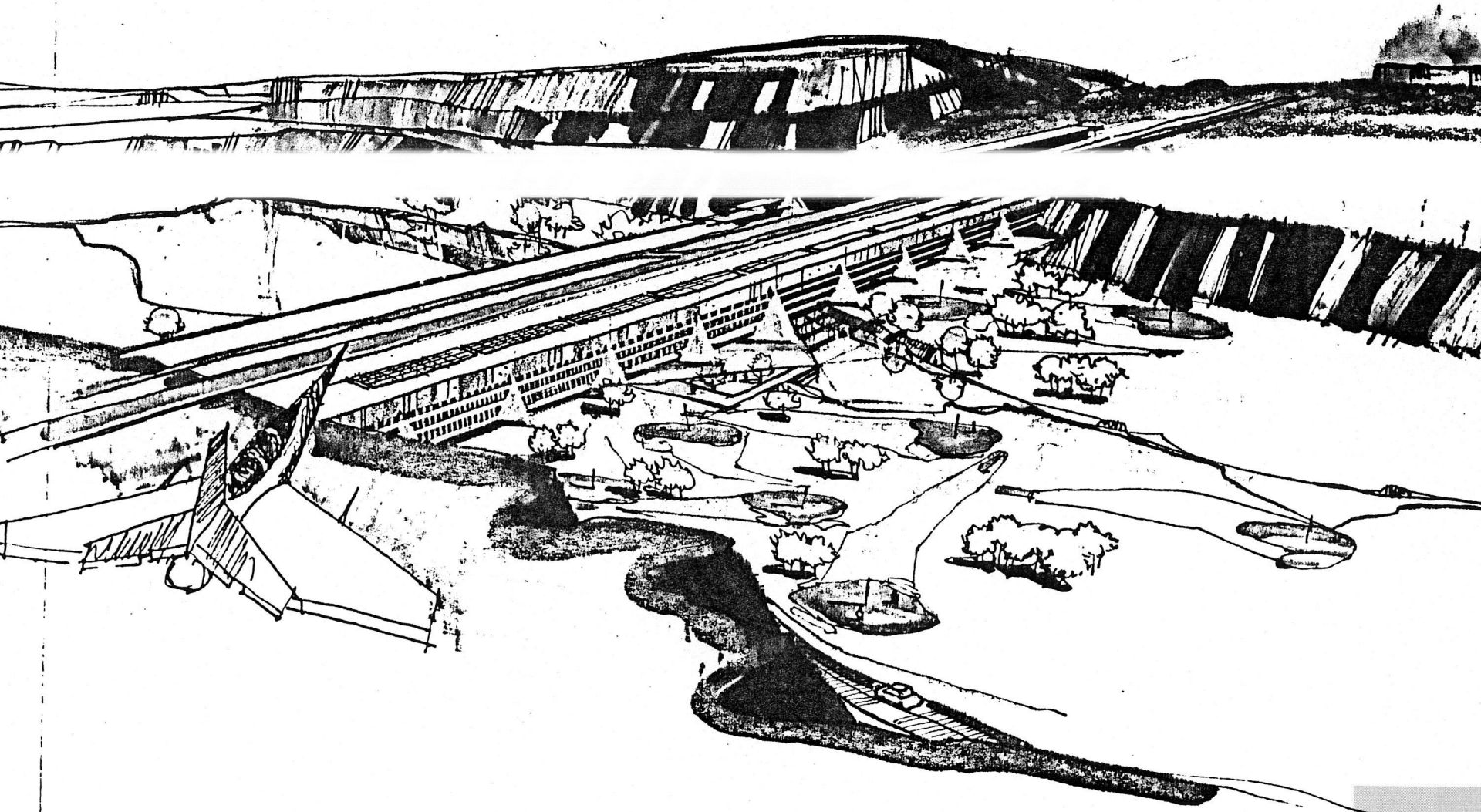
- Early 1980's-- The MX Example Conceptual Plan
  - AE Selection process at Corps Omaha offices
    - HQ SAC was in charge, prior to formation of AFRCE-MX at Norton AFB, CA.
  - over 100 AE Consortiums submitted
  - 3 selected- $100K each and 3 months to develop concept plans;35% and final presentations
    - Blank sheet of paper approach-wide open
    - One submittal-entire base in megastructure, with runway system on roof, a' la an aircraft carrier

Planning the two support bases for the MX deployment

- MX Conceptual Plan- 3 Consultant Groups
  - Benham-Blair & Affiliates
    - Wallace Roberts & Todd
    - Tippetts-Abbett-McCarthy-Stratton
    - Environmental Systems Research Institute
    - R&D Associates
    - Criteria
    - Paolo Soleri
    - Consultants including Dr. Edward R. Ostrander
      Dr. James A. Clapp, Dr. Lester I. Boyer, PE
  - EDAW Inc.
    - The Ehrenkrantz Group
    - Flack and Kurtz
    - Brown and Caldwell
  - PRC Toups Corporation



functional Diagram 4



Planning the two support bases for the MX deployment

- MX Base Comprehensive Plan
  - Second AE Selection process, also at Corps Omaha, for full BCPs for two bases
  - Over 50 teams competed and EDAW selected as prime with subs.
  - BCP Contract negotiated at newly established AFRCE-MX
  - EDAW Inc.
    - The Ehrenkrantz Group
    - Flack and Kurtz
    - Brown and Caldwell
    - The CRS Group

Planning the two support bases for the MX deployment

- Early 1980's-- The MX Example (cont.)
  - AFRCE-MX established at Norton AFB, CA
  - Millions of dollars for EIS and all support documents for the two bases and the entire MX system.
- Mid 1980's-entire program cancelled, but many lessons learned

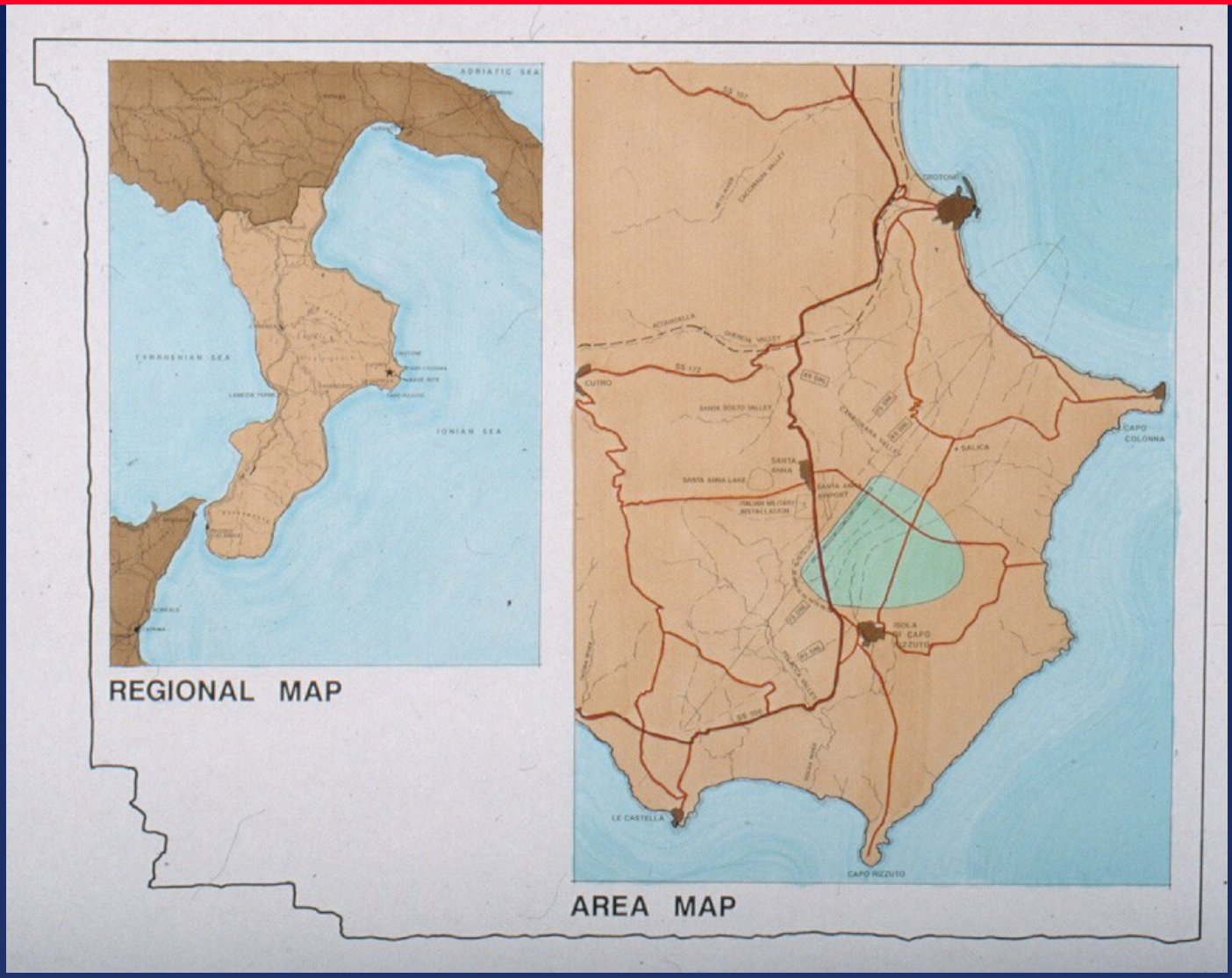
Lessons learned from both MX and Crotone base planning

- Think comprehensively-holistic approach
- Plan, design with nature
- Understand site constraints and opportunities; respect and build on them
- Understand functional relationships
- Understand logistical realities
- Fit base planning and design into larger neighborhood context
- Seek cost effectiveness, maintainability and sustainability

Planning a new Base in Europe

- Late 1980's-- Crotone, Italy Example
  - New Base to support relocated F-16 squadrons from Torrejon, Spain
  - Small airfield in toe of Italy selected for site of major new base, with all elements of AFB's
    - On base family housing, community center, schools etc.
  - Blended BCP principles with Survivability
    - Matured BCP and MX lessons learned
  - HQ USAF as advisors to project led by HQ USAFE with Black And Veatch as prime contractors with subs in Germany and in US.
  - Depended entirely on NATO funding
  - Cancelled, but B&V plans submitted to USAFA as case study for their planning course

Planning a new Base in Europe Location



Planning a new Base in Europe

- Some challenges for Crotone
  - All NATO funding; no US funds
  - Control of Southern Italy ports
  - On path of one of three major migratory bird routes in Europe
    - At toe of Italy; birds stop before crossing Med.
    - Landfill next to Crotone AB site
    - F-16 very vulnerable to bird strikes
  - Lack of indigenous work force

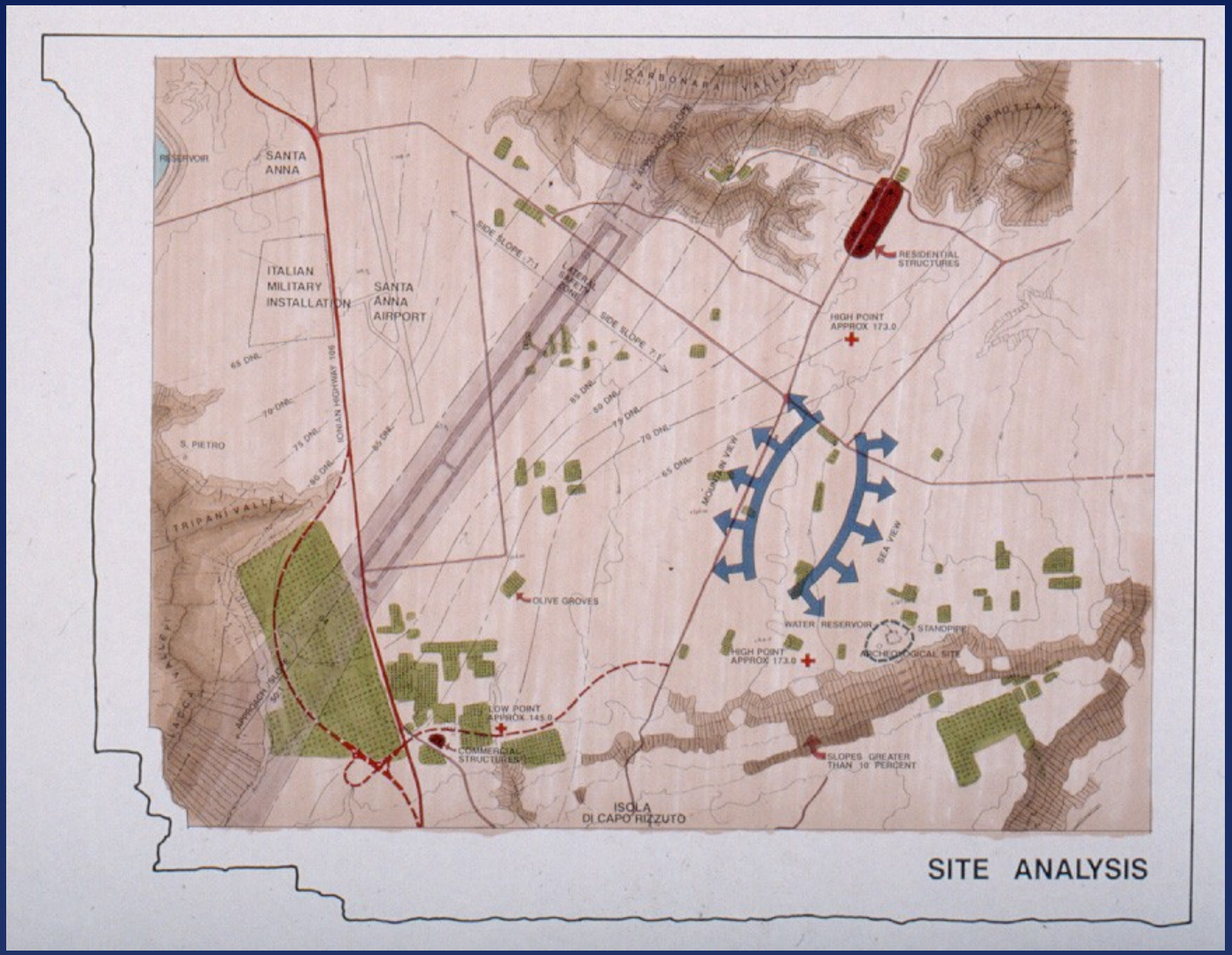
Planning a new Base in Europe

- Air Staff issued guidelines for “model base for the 21st Century”
  - Site Analysis-Constraints and Opportunities
  - Functional Relationships Analyses-How things function together or don’t
  - Survivability
  - Translation into land use planning
  - Utility systems analyses- system overlays to support land uses
  - Area Development Plans
  - Specific design parameters

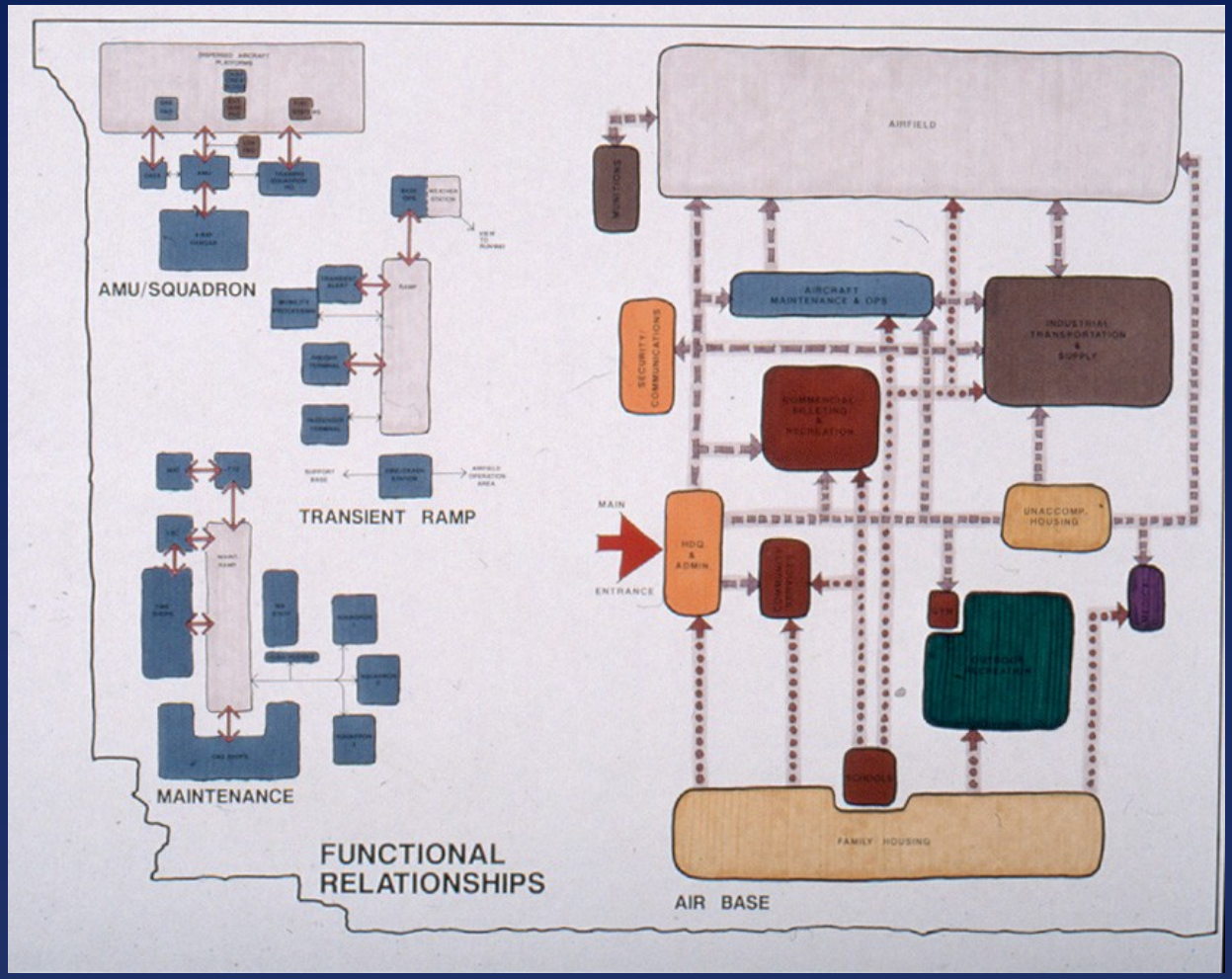
Planning a new Base in Europe

- Some “Planning Objectives” from Black and Veatch plan
  - “Provide the most efficient, maintainable, and cost effective use of base resources to support the mission and provide a high quality of life for base personnel and their families.”
  - “ include flexibility for future expansion needs, compatibility with the local area, environmental sensitivity, and survivability.”

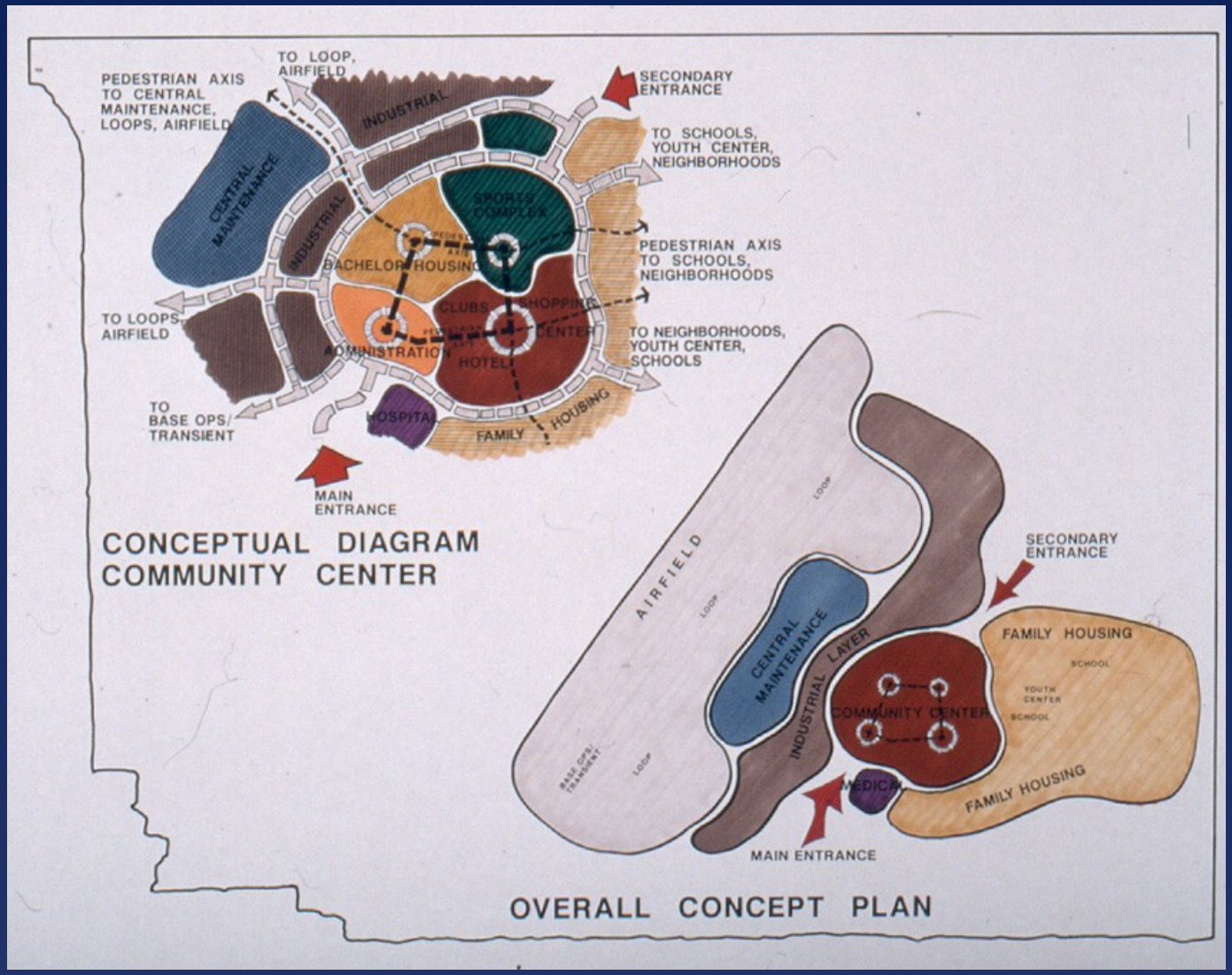
Planning a new Base in Europe
Site Analysis



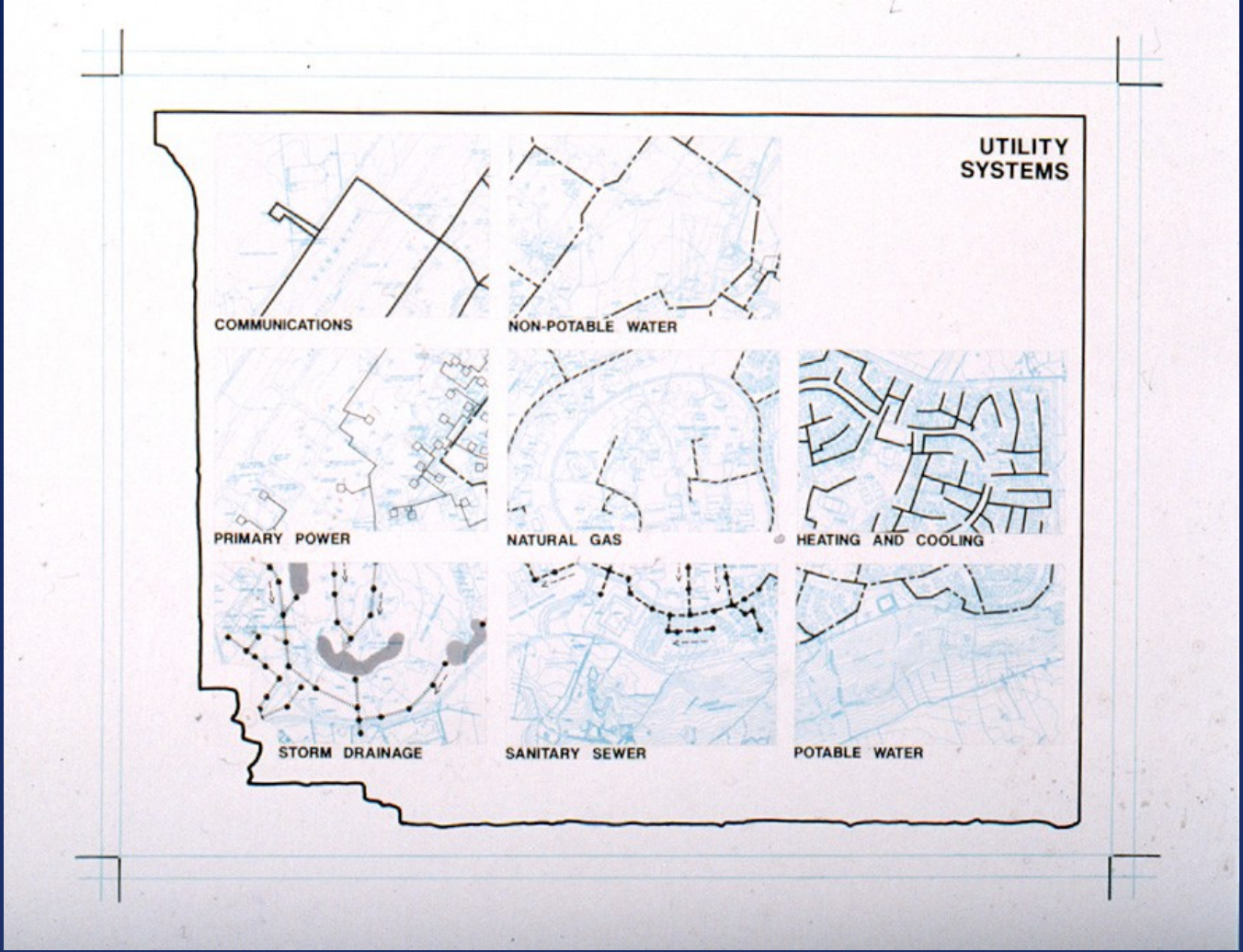
Planning a new Base in Europe
Functional Relationships



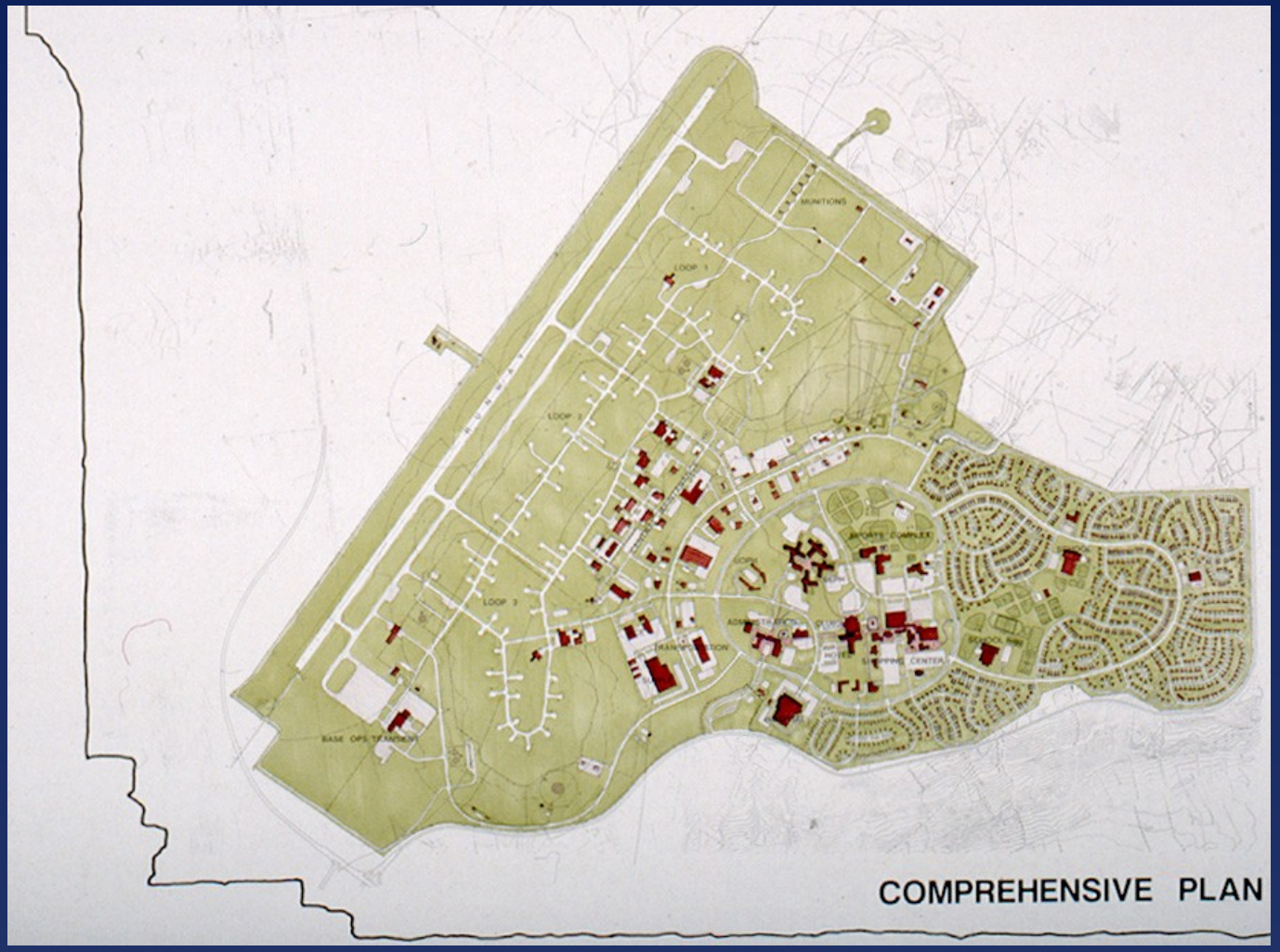
Planning a new Base in Europe
Conceptual planning



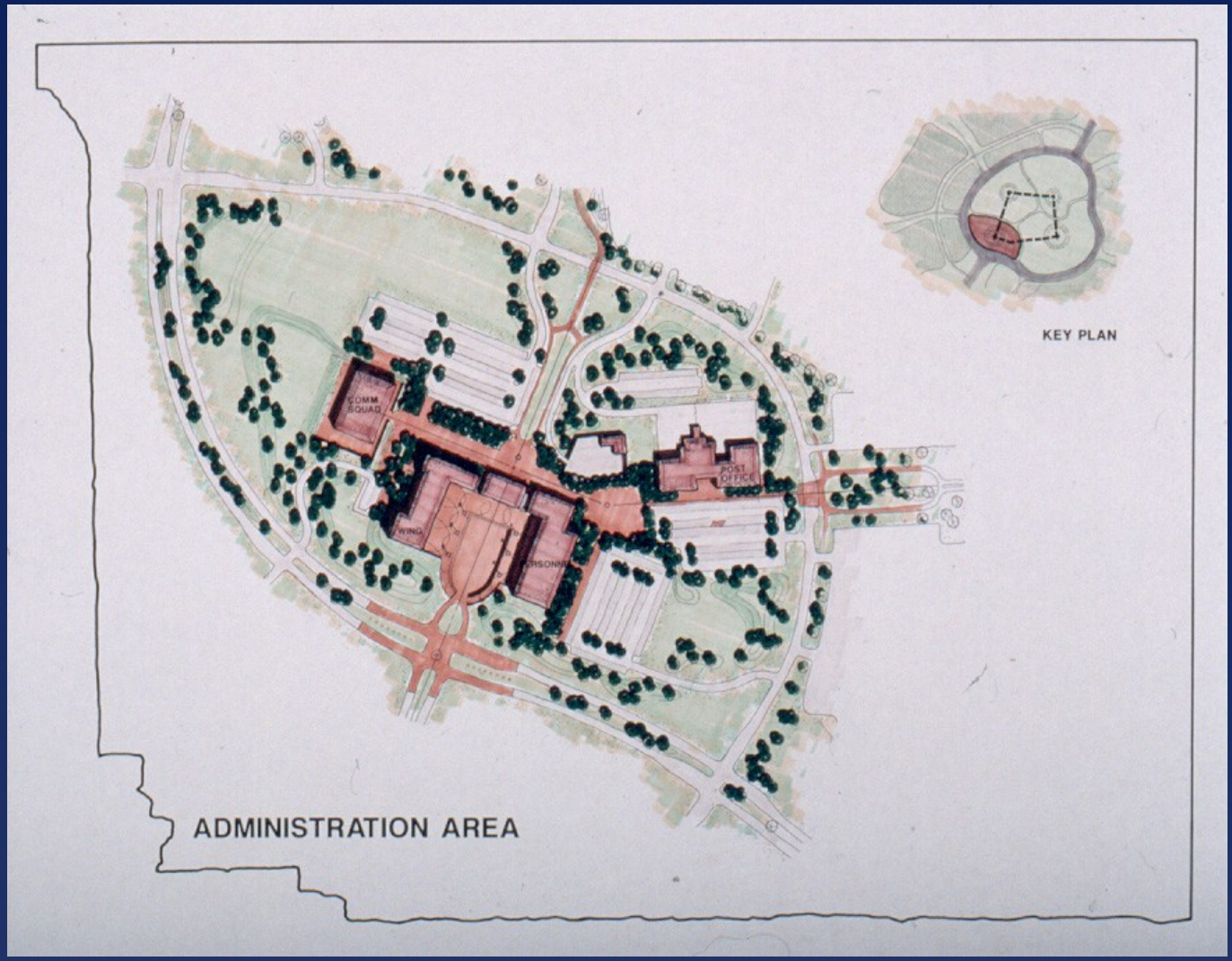
Planning a new Base in Europe
Utility systems analyses



Planning a new Base in Europe Comprehensive Plan

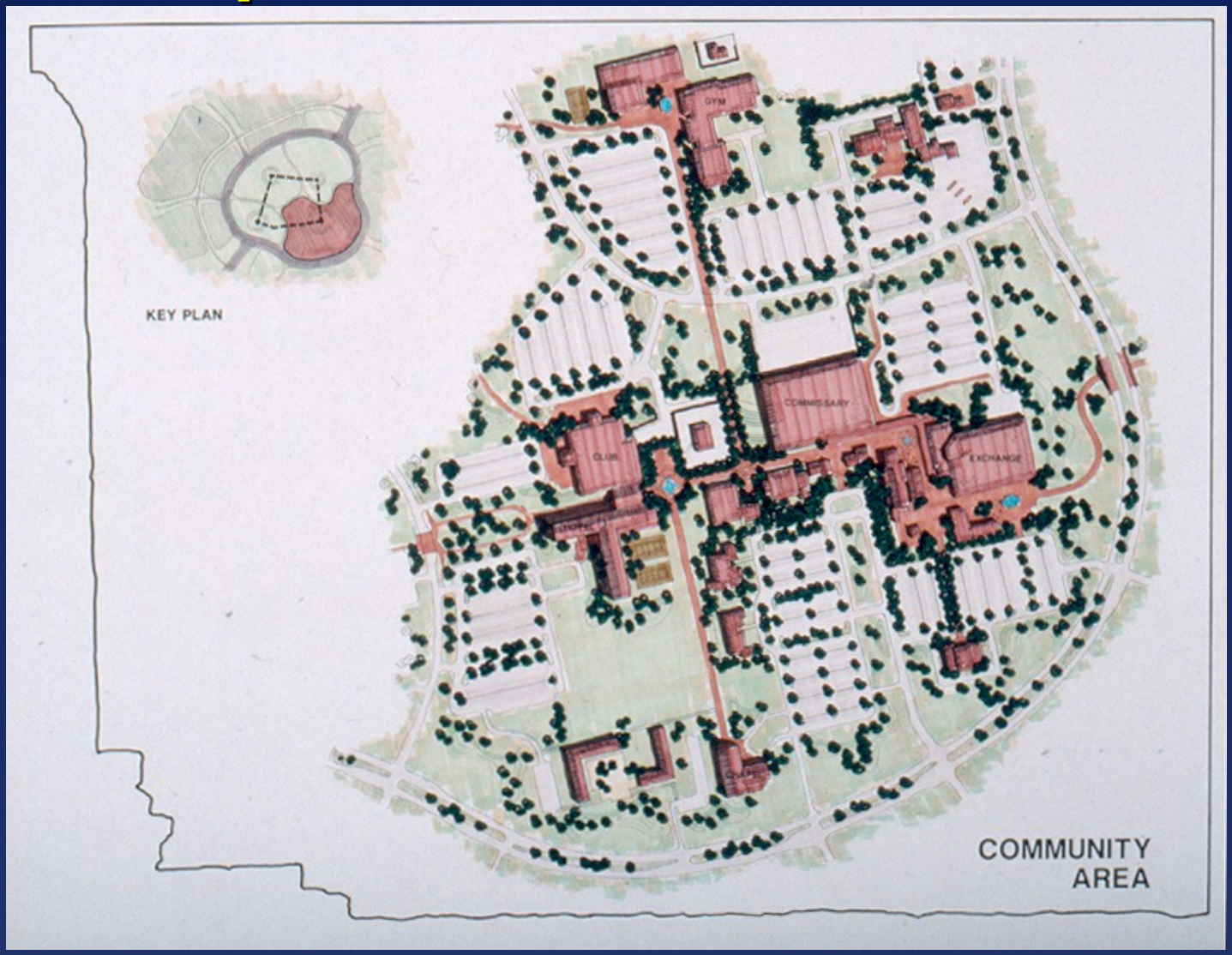


Planning a new Base in Europe
Administrative Area Development Plan



Planning a new Base in Europe
Administrative Area

Planning a new Base in Europe
Community Center Area Development Plan



Planning a new Base in Europe
Community Center Area

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